Small Business Innovation Research/Small Business Tech Transfer

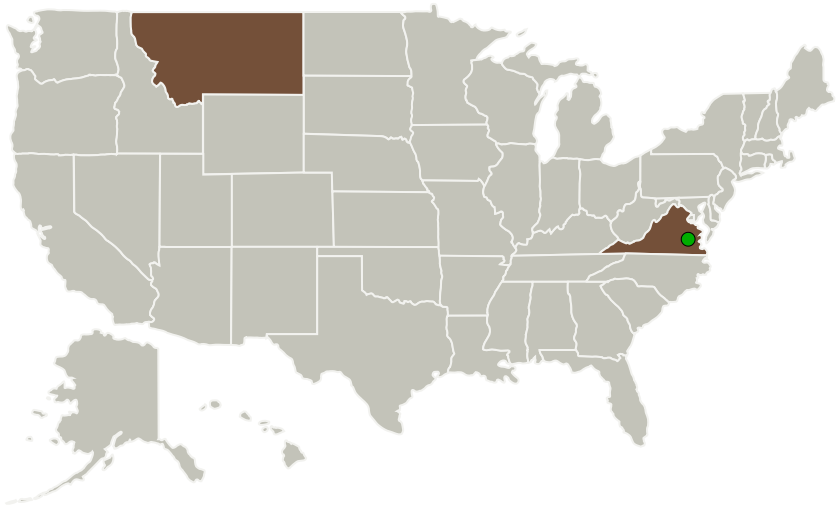
Digital Acquisition and Wavelength Control of Seed Laser for Space-Based LIDAR Applications, Phase I

Completed Technology Project (2014 - 2014)

Project Introduction

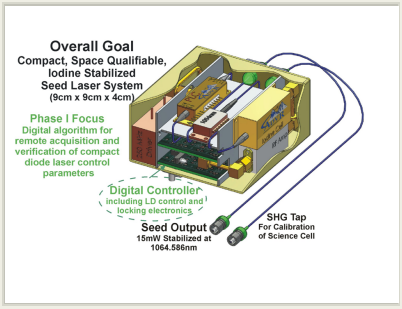
This SBIR Phase I proposes to establish the feasibility of using a space qualifiable Field Programmable Gate Array (FPGA) based digital controller to autonomously acquire and wavelength lock a tunable seed laser to a specified atomic or molecular reference. Successful development of this technology, due to its compact, efficient, and reliable design, is an important step towards enabling deployment of future space-based high spectral resolution lidar (HSRL) systems for remote sensing systems, as well as improving the autonomous performance of deployed and developing ground and flight-based HSRL systems.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
ADVR, Inc.	Lead Organization	Industry	Bozeman, Montana
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
Montana	Virginia



Digital acquisition and wavelength control of seed laser for space-based Lidar applications Project Image

Table of Contents

Digital Acquisition and Wavelength Control of Seed Laser for Space-Based LIDAR Applications, Phase I

Completed Technology Project (2014 - 2014)

Project Transitions

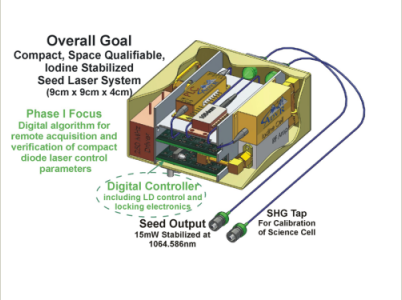
June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140566)*

Images



Project Image
Digital acquisition and wavelength control of seed laser for space-based Lidar applications Project Image *(https://techport.nasa.gov/image/128592)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
ADVR, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Shirley Mcneil

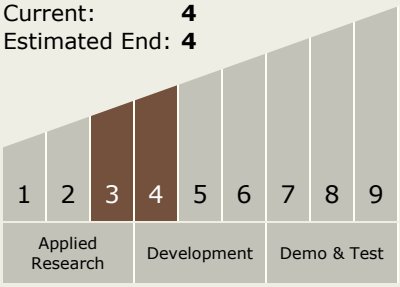
Co-Investigator:
Shirley Mcneil

Digital Acquisition and Wavelength Control of Seed Laser for Space-Based LIDAR Applications, Phase I

Completed Technology Project (2014 - 2014)

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System